

## 2013 VADEQ Citizen/Non-Agency Monitoring Activity Report

Since 2004, the number of stations monitored by citizen monitoring organizations, non-DEQ government agencies, private industries, and other monitoring groups has increased and much of the data collected have been incorporated into the bi-annual *305(b)/303(d) Integrated Water Quality Assessment Report* (Integrated Report). The final version of the 2012 Integrated Report once again contains the most citizen monitoring data to date.

### Citizen Monitoring Group Activities:

One of the ways DEQ tracks citizen monitoring is to identify the number of groups that have Level III Quality Assurance (QA) status, the highest data quality.

Monitoring groups who receive Level III status must meet three conditions:

1. Pass a DEQ field or (when applicable) laboratory audit
2. Possess a DEQ approved Quality Assurance Project Plan (QAPP) and field or laboratory Standard Operating Procedures (SOP)
3. Provide calibration and other quality control information to DEQ. This information must meet the specific criteria stated in the QAPP

This makes Level III equivalent in data quality to samples collected by DEQ. Because of this, Level III data can be used to independently list or delist waters from the 303(d) Impaired Waters List. Table 1 lists the citizen volunteer groups which have Level III certification and the number of stations that were included in the 2012 Integrated Report.

**Table 1- Level III Citizen Volunteer Organizations and Academic Institutions:**

Citizen Group	Member Groups	Level III Sites*	Level III Parameters
Alliance for Chesapeake Bay	8	81	Dissolved Oxygen (DO), temperature
Clean Virginia Waterways	1	25	E. coli
Dividing Creek Association	1	48	DO, pH, temperature
Friends of Norfolk Environment	1	11	Enterococcus
Friends of the North Fork Shenandoah River	1	7	DO, E. coli, nutrients, pH, temperature
Friends of the Shenandoah River (FOSR)	5	220	DO, E. coli, nutrients, pH, temperature
Historic Green Springs Inc.	1	7	DO, nutrients, temperature
Lake Anna Civic Association	1	23	Chlorophyll a, DO, E. coli, pH, nutrients, temperature
Leesville Lake Association	1	11	DO, pH, temperature
McClure River Restoration Project	1	35	E. coli
National Committee for the New River	1	33	DO, temperature
Poquoson Citizens for the Environment	1	30	pH, temperature
Smith Mountain Lake Association	1	33	DO, E. coli, pH, temperature
StreamWatch	1	114	Benthic macroinvertebrates
Sweet Briar College	1	6	E. coli
Timberlake Homeowners Association	1	11	Chlorophyll a, DO, E. coli, nutrients, pH, temperature
<b>Total</b>	<b>27</b>	<b>695</b>	

\* Stations with accurate site coordinates and located away from permitted discharges

In addition to the contributions provided by Level III monitoring groups, DEQ also works closely with monitoring groups that have Level II QA status.

QA Level II status is awarded to non-DEQ monitoring organizations that have a DEQ approved Quality Assurance Project Plan or QAPP. At this level, field or laboratory methods may deviate from DEQ recognized methods if it is demonstrated that the method provides similar quality data to an approved method.

Level II groups provide useful data to DEQ for identifying waterbodies for future DEQ monitoring and provide a generalized way to track Total Maximum Daily Loads implementation Table 2 lists the citizen volunteer organizations which supplied Level II data which was included in the final 2012 Integrated Report. Level II data cannot be used by DEQ to list or delist waterbodies on the 303(d) Impaired Waters List.

**Table 2- Level II Citizen Volunteer Organizations and Academic Institutions:**

<b>Citizen Group</b>	<b>Member Groups</b>	<b>Level II Sites*</b>	<b>Level II Parameters</b>
Audubon Naturalist Society	1	8	Benthic macroinvertebrate
Blackwater/Nottoway Riverkeeper	1	13	DO, pH, temperature
Bull Run Mountains Conservancy	1	2	DO, pH, temperature
Cowpasture River Preservation Association	1	15	E. coli
Cubitt Creek Monitors	1	10	E. coli
Friends of Blacks Run Greenway	1	15	E. coli
Friends of Chesterfield's Riverfront	1	26	DO, E. coli, pH, temperature
Friends of Russell Fork	1	19	E. coli, temperature
George Mason High School	1	3	E. coli
Headwaters SWCD	1	12	E. coli
Hoffler Creek Wildlife Foundation	1	1	DO, pH, temperature
Isle of Wight Ruritan Club	1	3	DO, pH, temperature
John Marshall SWCD	1	30	E. coli
Loudoun Wildlife Conservancy	1	37	E. coli, macroinvertebrate
Mattaponi and Pamunkey Rivers Association	1	11	E. coli
Nelson County Master Gardeners	1	12	E. coli
Phi Theta Kappa- Blue Ridge Community College	1	2	pH
Potomac Appalachian Trail Club	1	7	Macroinvertebrate, pH, temperature
Prince William Soil and Water Conservation District	1	12	E. coli
Randolph Macon College	1	12	E. coli
RappFLOW	1	19	E. coli
Riverine Chapter- Virginia Master Naturalists	1	6	DO, E. coli, pH, temperature
Rockfish Valley Foundation	1	6	E. coli
Save Little Pimmit Run	1	5	E. coli
Southside SWCD	1	20	E. coli
Smith Mountain Lake Association	1	76	Chlorophyll a, nutrients
Thomas Jefferson SWCD	1	11	E. coli
Upper Tennessee River Roundtable	1	9	E. coli
Virginia Save Our Streams	62	343	Benthic macroinvertebrate
Virginia Karst Monitors	1	3	DO, E. coli. pH, temperature
<b>Total</b>	<b>91</b>	<b>748</b>	

\* Stations with accurate site coordinates and located away from permitted discharges

### **Citizen Monitoring Grant:**

For the FY2014 Citizen Monitoring Grant solicitation, DEQ received 23 applications totaling \$129,916 in requests with \$88,000 available in funding. A four person panel reviewed applications and 19 applicants received funding. Grants will support volunteer based activities from January 1 through December 31, 2014. A final report from each recipient, including monitoring data, is due by February 14, 2015.

**Appendix 1** contains more information about the FY2014 grant recipients. Applications were scored based on the size and scope of the project, collaboration with other monitoring organizations, and the ability to sustain monitoring beyond the grant year.

### **Citizen Monitored Stream Miles:**

In 2002, the Virginia General Assembly passed legislation that established the Virginia Citizen Water Quality Monitoring Program in the Code of Virginia ([§62.1-44.19:11](#)). During the 2007 General Assembly, House Bill 1859 was passed that amended the Code as follows: "It shall be the goal of the Department to encourage citizen water quality monitoring so that 3,000 stream miles are monitored by volunteer citizens by 2010."

For the final 2012 Integrated Report, DEQ determined that 4,124 stream miles of Virginia's surface waters were monitored by citizen monitoring groups using either Level II or Level III protocols. Additional streams were monitored at Level I, however Level I monitoring data cannot be used for 305(b) assessment. As a result, they were not included in the totals.

In addition to the 4,124 stream miles monitored, citizen groups also monitored 40 square miles of estuaries and 27,975 acres of lakes and reservoirs. A list of Level II and III contributing organizations along with the mileage each group monitored is located in **Appendix 2**. Please note that some waterbodies were monitored by two or more organizations. To provide a fair calculation for each contributing group, the length or area of the waterbody with shared stations was averaged in proportion to the number of stations each group had in the waterbody. For example, if group A monitored two sites and group B monitored one site, group A received credit for 2/3 of the area and group B received 1/3.

### **Other Non-Agency Monitored Miles:**

During the 2012 Integrated Report, DEQ also tracked the contributions by non-citizen monitoring organizations. These "non-agency" submitters consist of other government agencies, private businesses, and other organizations that voluntarily provide monitoring data to DEQ. Note that Soil and Water Conservation Districts (SWCD) are considered a citizen volunteer group due to their long association with organizing volunteers to collect and process samples.

Based on the data received for the 2012 Integrated Report, non-agency organizations provided data covering 1,433 stream miles, 87.8 square miles of estuaries, and 9,855 acres of lakes or reservoirs. **Appendix 3** of this report contains a list of contributing organizations and the mileage attributed to each group. As with the citizen data, some non-agency groups monitored the same waterbody segment as another citizen or other non-agency group. The same method of listing a proportional mileage based on the number of stations for each group in the segment was applied.

### **Citizen Nominations:**

As required by Code of Virginia [§62.1-44.19:5.F](#) Water Quality Monitoring, Information and Restoration Act (WQMIRA), DEQ received nominations for 10 waterbodies in Virginia. Of the nominations received

from January 1 through April 30 2013, DEQ will monitor all 8 waterbodies during the 2014 sampling year. Table 3 lists the nominated waterbodies that will be monitored by DEQ in 2014.

**Table 3: Nominated Waterbodies Prioritized for DEQ Monitoring**

County	Stream Name	Parameter	Name of Nominating-Group
Chesterfield	Great Branch Creek	Ambient (DO, pH, conductivity, temperature), E. coli, nutrients	Concerned Citizens of Chesterfield
Loudoun	Bull Run	Benthic Macroinvertebrates	Loudoun Watershed Watch
Loudoun	Goose Creek	Benthic Macroinvertebrates	Loudoun Watershed Watch
Wise	Callahan Creek	Selenium	Southern Appalachian Mountain Stewards
Dickerson	North Fork Pound River	Ambient, E. coli chloride, metals	Lonesome Pine SWCD
Dickerson	McClure River	Ambient, E. coli, chloride, metals	Lonesome Pine SWCD
Dickerson	Russell Fork	Ambient, E. coli, chloride, metals	Lonesome Pine SWCD
Nelson	South Fork Rockfish River	Ambient, E. coli, nutrients	Rockfish Valley Foundation

### Citizen/Non-Agency Monitoring Database:

The VADEQ Citizen/Non-Agency monitoring database at [www.deq.virginia.gov/easi/](http://www.deq.virginia.gov/easi/) has been available since January 2008. As of December 2013, the database contains over 2,516 sample sites comprised of over 31,265 sampling events. Table 4 lists the groups who have accounts.

**Table 4: Monitoring Organizations with Accounts at [www.deq.virginia.gov/easi/](http://www.deq.virginia.gov/easi/)**

Abingdon WWTP	James River Association
Alliance for the Chesapeake Bay	John Marshall SWCD
Arlington County Four Mile Run Monitors	Lake Anna Civic Association
Blackwater/Nottoway Riverkeeper	Leesville Lake Association
Central Blue Ridge Virginia Master Naturalists	Lord Fairfax SWCD
Chesapeake Bay Governor's School	Loudoun County
Chesapeake Beach Civic League	Loudoun Watershed Watch
Chesterfield County Office of Water Quality Protection	McClure River Restoration Project
Chesterfield Public Schools	Nansemond River Preservation Project
Chesterfield WaterTrends	National Committee for the New River
Chickahominy Swamp Rats	Pocahontas State Park
City of Newport News	Poquoson Citizens for the Environment
City of Norfolk	Potomac Appalachian Trail Club
City of Suffolk	Prince William SWCD
Clean Virginia Waterways	Randolph-Macon College
Cowpasture River Association	RappFLOW
Dividing Creek Association	Riverine Chapter Virginia Master Naturalists
Edge Valley Preservation LLC	Roanoke Valley Chapter Trout Unlimited
Fairview Beach Residents Association	Rockfish River Monitors
Four Creeks Coliscan Monitors	Save Our Streams
Friends of Norfolk Environment	Smith Mountain Lake Association
Friends of Shenandoah River	Southside SWCD
Friends of Russell Fork	Thomas Jefferson SWCD
George Mason High School	Timberlake Homeowners Association
Goose Creek Association	Town of Dumfries
Historic Green Springs Inc.	Tye River Monitors
Isle of Wright Ruritan Club	United States Coast Guard Auxiliary Flotilla 33
James City County	University of Virginia

**Public Outreach:**

The Water Quality Monitoring and Assessment Program (WMA) at DEQ have played an active role in participating in community events. Citizen monitoring organizations sponsored many of the events held throughout the Commonwealth. In 2013, WMA staff participated in 21 such events. **Appendix 4** provides additional details of these events.

**Volunteer Monitoring Training:**

During 2013, DEQ staff participated in 14 monitoring training and technical assistance events with various water quality monitoring groups. Training and technical assistance to monitoring groups will continue to be a priority in 2014. **Appendix 5** lists these training events DEQ staff participated in during 2013.

**Appendix 1: List of FY2013 Citizen Monitoring Grant Awardees**

<b>Name of Organization</b>	<b>Project Details</b>	<b>Parameters</b>	<b>Locality or Region</b>	<b>Award Amount</b>
Alliance for the Chesapeake Bay	Provide technical support and training to Alliance member monitoring groups in Virginia	DO, E. coli, nutrients, pH, temperature and turbidity	All localities that have tributaries to the bay	\$12,000
Department of Conservation and Recreation	To continue and expand volunteer monitoring in Bear Creek and Twin Lakes State Parks	Chlorophyll a, DO, nutrients pH, and temperature	Cumberland and Prince Edward	\$2,000
Friends of Chesterfield Riverfronts	Continue to promote and expand the Chesterfield Water Trends Program	DO, E. coli, pH, temperature, turbidity	Chesterfield	\$3,700
Friends of the Shenandoah River	Continue long term monitoring of the Shenandoah River covering nearly 3,000 square miles along 59 different watersheds	DO, E. coli, nutrients, pH, temperature	Augusta, Clarke, Frederick, Page, Rockingham, Shenandoah, and Warren	\$10,000
Isle of Wight Ruritan Club	Continue monitoring waterways in Isle of Wight and Surry counties	DO, E. coli, pH, temperature	Isle of Wight and Surry	\$2,200
Izaak Walton League of America	Support the Virginia Save Our Streams program by providing training, equipment, quality assurance, and data management	Macroinvertebrates	Statewide	\$12,000
Lake Anna Civic Association	Continue ambient monitoring in and around Lake Anna	DO, E. coli, nutrients, pH, temperature	Louisa, Orange, and Spotsylvania	\$3,000
Lewis Ginter Botanical Garden	Baseline monitoring to determine water quality on the property and the environmental impact of the Garden facility	DO, E. coli, nutrients, temperature	Richmond City	\$3,000
Lonesome Pine Soil and Water Conservation District	Continue bacteria monitoring along the McClure river and tributaries	DO, E. coli, pH, temperature	Buchanan and Dickenson	\$3,000
Longwood University	Resume bacteria monitoring at multiple stations in the Appomattox River watershed	E. coli.	Amelia, Cumberland, Prince Edward	\$2,400
Nansemond River Preservation Alliance	Continue monitoring along the Nansemond River	DO, E. coli, pH, salinity, temperature, turbidity	Suffolk	\$3,700
National Committee for the New River	Monitor 34 stream sites in the New River Watershed.	DO, E. coli, pH, temperature, turbidity	Bland, Carroll, Floyd, Giles, Grayson, Pulaski, Wythe	\$1,300
Smith Mountain Lake Association	Continue monitoring program in Smith Mountain Lake and tributaries	Chlorophyll a, DO, E. coli, nutrients, pH, temperature	Bedford, Campbell, Franklin	\$10,000
The Historic Green Springs Inc.	Continued monitoring of the York Watershed headwaters	DO, nutrients, pH, temperature, total suspended solids	Louisa	\$2,000

<b>Name of Organization</b>	<b>Project Details</b>	<b>Parameters</b>	<b>Locality or Region</b>	<b>Award Amount</b>
The Marine Science Consortium	Work with local volunteers to monitor water quality on the Eastern Shore.	DO, E. coli, pH, nutrients, temperature, turbidity	Accomack	\$3,900
Town of Dumfries	Volunteer E. coli bacteria monitoring project along Quantico Creek to establish baseline data	E. coli	Prince William	\$3,000
Upper Roanoke River Roundtable	Provide training and oversight of volunteer program in the upper Roanoke River watershed	Macroinvertebrates	Bedford, Franklin, Roanoke, Roanoke City	\$2,800
New River Chapter Virginia Master Naturalist	Conduct initial background survey of New River Valley streams for use by DEQ and local government officials.	DO, E. coli, macroinvertebrates, pH, temperature, turbidity	Giles, Montgomery, Pulaski	\$4,000
Virginia Water Monitoring Council	Provide educational information about water quality and distribute World Water Monitoring Day kits to schools and the public	N/A	Statewide	\$4,000

**Appendix 2: Mileage Contributions of Citizen Organizations Based on 2012 305(b)/303(d) Final Report**

<b>Monitoring Group</b>	<b>Estuary Mile<sup>2</sup></b>	<b>Reservoir Acres</b>	<b>River / Stream Miles</b>
Alliance for the Chesapeake Bay	32.895	12.28	98.05
Audubon Naturalist Society			13.19
Blackwater/Nottoway Riverkeeper			477.03
Bull Run Mountains Conservancy			12.6
Clean Virginia Waterways / Longwood University			61.52
Cowpasture River Preservation Association			95.86
Cubbitt Creek Monitors	0.227		
Dividing Creek Association	3.559		72.99
Friends of Blacks Run Greenway			13.94
Friends of Chesterfield's Riverfront	0.501	88.37	36.89
Friends of Norfolk Environment	0.027		
Friends of Russell Fork			28.71
Friends of the North Fork Shenandoah River		40.95	13.15
Friends of Shenandoah River		0.74	671.1
George Mason High School			3.67
Headwaters Soil and Water Conservation District			70.22
Historic Green Springs Inc.			33.82
Hoffler Creek Wildlife Refuge	0.057		
Isle of Wight Ruritan Club			36.16
John Marshall Soil and Water Conservation District			64.29
Lake Anna Civic Association		9,567.78	11.98
Leesville Lake Association		717.57	
Loudoun Wildlife Conservancy			86.88
Mattaponi Pamunkey Rivers Association	2.015		40.15
McClure River Restoration Project			76.05
National Committee for the New River			144.85
Nelson County Master Gardeners			71.49
Phi Theta Kappa (Blue Ridge Community College)			2.06
Poquoson Citizens for the Environment	0.322		46.9
Potomac Appalachian Trail Club			20.56
Prince William Soil and Water Conservation District	0.543		32.35
Randolph Macon College			30.13
RappFLOW			15.28
Riverine Chapter Virginia Master Naturalist			55.52
Rockfish Valley Foundation			7.7
Save Little Pimmit Run			1.85
Smith Mountain Lake Association		16,313.6	38.71
Southside Soil and Water Conservation District			124.1
StreamWatch			397.64
Sweet Briar College			99.38
Thomas Jefferson Soil and Water Conservation District			51.59
Timberlake Homeowners Association		56.96	4.93
Upper Tennessee River Roundtable			14.53
VA Karst Monitors			7.46
Virginia Save Our Streams		1,177.21	939.16
<b>Grand Total</b>	<b>40.146</b>	<b>27,975.46</b>	<b>4,124.44</b>



**Appendix 3: Mileage Contributions of Non-Citizen Organizations Based on 2012 305(b)/303(d) Final Report**

<b>Group Name</b>	<b>Estuary Mile<sup>2</sup></b>	<b>Reservoir Acres</b>	<b>River / Stream Miles</b>
Abingdon Sewage Treatment Plant			1.65
Appalachian Power		3,663.68	
Arlington County Environmental Services			10.42
Chesterfield County Dept of Environmental Engineering		1,049.46	96.96
City of Newport News Waterworks			23.22
Cumberland Resources Corporation			16.34
Edge Valley Preservation LLC			12.27
James City County Stormwater Division	0.276		55.95
National Park Service- Assateague Island National Seashore	33.131		
National Park Service- Mid-Atlantic Monitoring Network			131.48
National Park Service- Richmond Battlefield Parks			47.74
Occoquan Watershed Monitoring Laboratory		1,874.96	
Page County Department of Environmental Services			57.65
Tennessee Valley Authority		1,699.32	
United States Environmental Protection Agency			3.77
United States Fish and Wildlife			15.81
United States Forest Service			494.43
United States Geological Survey		46.81	465.77
Virginia Department of Health- Beach Monitoring Program	54.418		
<b>Non-Agency Total</b>	<b>87.825</b>	<b>8,334.23</b>	<b>1,433.46</b>

#### **Appendix 4: Public Outreach Events**

**February 21: Falling Creek Middle School-** DEQ staff taught 29 sixth grade students about water quality monitoring. Richmond, VA

**March 18: New River Valley Master Naturalists: Virginia Citizen Science Summit-** DEQ headquarters staff presented on ways the agency can use citizen volunteer data. Blacksburg, VA

**April 20: Abingdon Earth Day Event-** DEQ Southwest Regional Office (SWRO) staff attended. Abingdon, VA.

**April 21: Lawrenceville Earth Day Event-** DEQ Piedmont Regional Office (PRO) staff picked up trash along the Tobacco Heritage Trail.

**April 22: Holston River SWCD's Farm and Field Day-** DEQ SWRO assisted with benthic macroinvertebrate station and interacted with 300 participants.

**April 23: John Rolfe Middle School-** DEQ Headquarters staff assisted with Science Technology Engineering and Mathematics (STEM) Science Fair for over 200 students. Varina VA

**April 30: Robious Middle School: Annual Canoe trip at Deep Bottom on the James River-** DEQ staff supervised canoe trips and talked about pollution in tributaries to the Chesapeake Bay to 50 students.

**April 30: Chickahominy Swamp Rats-** PRO staff attended initial meeting of the group. Mechanicsville, VA.

**May 1: Robious Middle School: Annual Canoe trip at Deep Bottom on the James River-** DEQ staff supervised canoe trips and talked about pollutions in tributaries to the Chesapeake Bay to a second group of 50 students.

**May 2: Perry McClure Middle School-** Valley Regional Office (VRO) personnel manned the macroinvertebrate station of a stream administrated by Boxerwood in Rockbridge County for fifth grade students. Buena Vista, VA

**May 14: Midlothian High School-** DEQ staff judged presentations from 21 students Midlothian, VA

**June 25: Virginia Water Monitoring Council Annual Summit-** DEQ staff attended and presented at the conference which had over 100 attendees. Henrico, VA

**July 29: Mathews Kayak Camp-** Employees from PRO attended and provided watershed and water quality discussion, activities and monitoring.

**August 9-10: EPA Region III Volunteer Summit-** DEQ Headquarters staff attended and presented at the conference of about 70 attendees. Shepherdstown WV.

**August 31: EPA Community Action for a Renewed Environment (CARE) meeting-** DEQ Headquarters staff attended to promote citizen volunteer monitoring to an audience of 50 attendees in Newport News, VA.

**September 23: York River Annual Canoe Paddle-** PRO employees led the Poropotank paddle.

**September 26: EPA CARE meeting-** DEQ Headquarters staff attended a second meeting to promote citizen volunteer monitoring to an audience of 27 attendees in Newport News, VA.

**September 27- October 6: State Fair-** DEQ Headquarters and PRO staff manned an exhibit on benthic macroinvertebrates and explained how they are good indicators for water quality. Doswell, VA

**October 5: Gordonsville Street Festival-** PRO employees distributed pet waste educational material. Gordonsville, VA.

**October 26: Dividing Creek Association fall meeting-** DEQ staff said farewell to a long time volunteer monitor and express appreciation to the contributions the group has made to the citizen volunteer program.

**November 9: Virginia Citizens for Water Quality Summit-** Headquarters staff presented at the conference and led a workshop training session. Approximately 40 people in attendance.

## Appendix 5: Volunteer Monitoring Training

1. **Coliscan Easygel Training-** As part of the DEQ commitment to support volunteer monitoring, the agency provided equipment and training on the use of the Coliscan Easygel™ method to detect E. coli bacteria. As part of the training, groups agreed to share their data with DEQ. The agency will use the data to track bacteria levels in the monitored watersheds. Below is a list of training events with groups who participated in the effort.
  - a. **January 15: University of Virginia-** Provided training to 18 UVA students as part of a larger water quality monitoring course in partnership with the Rivanna Conservation Society in Charlottesville, VA.
  - b. **March 2: Arlington County-** Assisted Arlington County stormwater staff with training 16 volunteers on the Coliscan method.
  - c. **March 6: Lake Gaston Association-** Provided training on how to use Coliscan to monitor Lake Gaston to roughly 26 volunteers in Brunswick County.
  - d. **March 30: James River Association-** Provided training to 27 JRA volunteers on using Coliscan as part of JRA River Watch program in Richmond, VA.
  - e. **October 28: Dan River Basin Association-** Providing training to 13 volunteers starting a Coliscan project around the Martinsville area.
2. **March 9: Dividing Creek Association-** Validated accuracy of monitoring equipment in Kilmarnock, Virginia.
3. **April 12: Lake Anna Civic Association-** Inspected and verified accuracy of field monitoring equipment in Spotsylvania County.
4. **April 23: Department of Conservation and Recreation-** Inspected and trained DCR staff on collecting water quality samples in DCR operated lakes. Chester, VA.
5. **July 3: Ferrum College/Smith Mountain Lake Association-** Reviewed Ferrum College laboratory facilities and field procedures in processing samples for the Smith Mountain Lake Association monitoring program. Validated accuracy of field and laboratory thermometers. Ferrum, VA.
6. **July 11: Southern Appalachian Mountain Stewards-** Conducted an audit and review of sampling protocols and validated thermometers in Appalachia, VA.
7. **July 11: McClure River Restoration Project-** Conducted an audit and training for methods used in Dickenson County.
8. **July 30: Science Educators Training-** Employees from DEQ Headquarters lead training on water quality monitoring with 21 science teachers. Syria, VA.
9. **September 12: Lake Monticello Homeowners Association-** Staff trained and reviewed volunteer sampling methods. Lake Monticello, VA.
10. **October 5: Marine Science Consortium-** Headquarters staff led a water quality training module with 15 volunteers. Wallops Island, VA.